X103

Garden City Atari Computer Enthusiasts

1003 Amphion St. Victoria, B.C. Canada V8S 4G2

GCACE

January/February 1996

January 25th Meeting!

January 25th is our annual election night. Please consider running for an executive position, as we need some new blood to keep the executive meetings lively. The amount of time and energy required is relatively small, while the benefits you and the club will receive are large. You do NOT have to be a computer expert. John Picken is regularly amused (and quick to point out) how little the president knows. What little knowledge I have was picked up a lot quicker and easier after I joined the executive. Do yourself a favour and join us.

Gord

Inside.

ATARI® News and Rumours

by Rowland Grant

Atari got off to a shaky start this holiday season, in spite of an avalanche of new Jaguar games. The rumours that Atari was intending to discontinue its Jaguar game system were spreading. Even the usually evenhanded Next Generation magazine's Web page published the rumours as fact. There were reports that sales clerks in stores were using the rumours to discourage potential Jaguar buyers. In spite of a well-written and sympathetic article in Next Generation, the Jaguar was given a rating of two out of five (the same for 3DO), whereas the more recent competitors (PlayStation, Saturn) were rated at four. That didn't help sales either. Atari USA's president Ted Hoff posted a vigorous denial of the rumours on NextGen's Web page, but the rumours continued.

So in an interview with MMWIRE, Ted Hoff clarified the new directions that Atari is taking. Ted Hoff confirmed that Atari will be developing games for PC, Macintosh, PlayStation and Saturn game platforms. He said that this would prevent Atari from being locked into the Jaguar, and create additional revenue sources. Hoff said that Atari intends to release about 20 titles for the Jaguar in 1996 and another 20 for the PC. Of the 96 Atari titles under way or in planning, half will be for the PC. Even so, he stated that Atari is still putting the bulk of its funds behind development for the Jaguar. Platforms other than the Jaguar and the PC have a much lower priority.

Ted Hoff also commented on the layoff of development staff at Atari. He explained that some developers were let go after the cancellation of a project that produced no results after more than two years. Others were released after completing the titles assigned. In all, only about a dozen positions were cancelled. All the title producers that manage outside development projects were kept. Ted Hoff also acknowledged that Atari had shelved the virtual reality headset. Apparently the key elements in the headset were not commercially acceptable, making users "woozy".

These comments by Ted Hoff brought some criticism. If Atari is supporting the Jaguar, why would it make games for competing game consoles such as PlayStation and

See *News and Rumours* on Page 4

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MEMBERSHIP

Membership dues are $25 per family per year. Membership includes a subscription to this newsletter, access to over 300 8-bit public domain disks and 155 ST disks and increased time and upload/download ratio on the club BBS, Pothole. It can be reached by modem at (604) 642-6795.

MEETINGS

Meetings will be held in the Nellie McClung branch of the Library at 3950 Cedar Hill Road (corner of McKenzie) on the fourth Thursday of each month. All meetings are at 7 pm. There is no meeting in the month of December. Copying of club ST public domain disks is done at meetings. Bring a blank, formatted disk for each PD disk you want. For 8-bit copying, please phone the club 8-bit librarian.

EDITORIAL

Because of the size of recent newsletters, it has been decided to reduce the size of the typeface in order to keep the newsletter down to the smallest size possiible. We now use a Garamond font at 9 pt, as compared to 11 pt, which was used previously. This is being undertaken in order to keep the postage rates as low as possible. It is also a tribute to the members who contribute to the newsletter. Every other newsletter I read has an obligatory plea from the editor for contributions. If I wasn't afraid of throwing a spanner into the works, I would be asking writers to think about writing for only every second issue. But don't take that last statement seriously, authors! We will find space for all articles submitted.

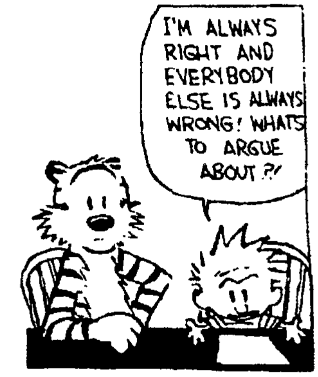
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PEEKing Around

by Gordon F Hooper



... Welcome back to renewing members TED SKRECKY and NOEL BLACK. Also renewing from the boondocks are DOUG SKRECKY in Vancouver and MARK ERICKSON from Courtenay ... Words of wisdom from some anonymous wit (or maybe that should be "twit"). I saw it on the Internet. "An IBM with Windows 95 thinks it's a Macintosh that wishes it was an ST" ... MIKE HARRISON, a former member, donated a big load of Atari 8-bit hardware and software to the club, which has been distributed among our 8-bit users. Thanks, Mike ... I hear from one of my spies that JACK BASUK is buying dinner for JOHN TOWLER and STEVE LEMMEN for their assistance in setting up his CD ROM ... My e-mail address is ua558@freenet.victoria.bc.ca (no dot at the end of ca). I'd appreciate it if any of our corresponding members who have e-mail access through the Internet would e-mail me their addresses. I already have the addresses of ALEX CHAMBERLAIN in Portland, MURRAY KURCHERAWY in London, Ontario and DOUG SKRECKY in Vancouver. Makes it a heck of a lot easier to keep in touch ... JOHN PICKEN has finally broken down and acquired an ST. Welcome to the 19th century, John. The ST was from a friend of Mike Harrison's ... JOHN O'NEILL has finally solved his high speed modem problems by changing software. He now is getting around at 9600 bits per second. He is pleased, after having put up with 1200 bps for a long time. BILL MILLER accompanied him to my house while we were trying to solve the modem problem ... DANE STEGMAN of Acron, New York keeps in touch regularly though the mail. We would like to hear from other corresponding members. Please uncork the old fountain pen and write ... Have you heard about the Windows 95 programmer named Gary, who died? He found himself before St. Peter, who was to decide whether he was to go to Heaven or Hell. St Peter said the programmer had some say in the matter, so would he like to see both before making a decision? "Sure", said Gary. He was immediately seated in an outdoor bar on a sunny beach drinking a martini and watching the Swedish Bikini Team engaged in a game of volleyball. "Wow" said Gary. "Heaven is great!" "Wrong", said St. Peter. "This is Hell. Want to see Heaven?" "Sure", said Gary. This time he found himself in a seedy park in a downtown ghetto where people were playing Bingo and feeding popcorn to sickly, emaciated pigeons. "If this is Heaven", said Gary, "I'll go to Hell!" Instantly he found himself immersed up to his neck in red-hot lava, with the hosts of the damned screaming in torment around him. "Where's the beach, the martini, the Swedish Bikini Team"?, yelled Gary. "That was the demo", St. Peter replied as he vanished ... If you run into any of those hosts of the Damned, ask them to send any info on GCACE members to GORD at 475-0857 ...

Game Machine Review

by Dougas Skrecky

The editor's of Electronic Games Monthly have once again come out with a video game buyers guide this year. There were four reviewers rating video machines, but since the numbers tended to be rather close I just used their averages. A "1" means very poor and a "10" is wocka wocka wow! The ratings for the three portables are higher than they would be, if they were rated as home units.

Sony PlayStation 9.25
for upgrading, this is the system to get

Super NES 7.5
continues to reign supreme in the 16 bit market

Sega Saturn 7.25
PlayStation's specs better.

Neo-Geo 6.75
price has turned most recreational gamers off.

3DO 6.25
only hope ... is the M2 add-on.

Sega Genesis 5.25
The system's time is up.

Sega 32X 2.75
32X is the greatest waste of money yet.

Jaguar 2.5
put to shame by most 16 bit systems.

Sega CD 2.5
Sega laughed ... all the way to the bank.

Game Gear 7.25
best portable system out there.

Virtual Boy 5.25
comes up short in playability.

Game Boy 4.75
save money and invest in another system

Once again the Super NES seems to get a best-buy rating, with the only other home unit worth buying being the Sony PlayStation. Forget everything else. In the portables it appears that Virtual Boy is a bust because of it's price and poor graphics. Only the Game Gear is worth considering.

The cause of the poor ratings for the Jaguar seem to be due not only to the lack of quality software, but also the inferior graphics and poor controller. Reviewer Mike claims that this system is sure to die an early death. Three systems that were reviewed last year as being at death's door have since croaked. These

See *Game Review* on **Page 16**

Continued from Page 1

Saturn? More disturbing, some game developers pointed out that there don't seem to be any new game starts for the Jaguar beyond mid 1996. Also they say that Atari seems to be disinterested in new game proposals from established Jaguar developers. Moreover, comments from within Virtuality, the developer of the VR headset, suggest that Atari dropped the VR project for reasons other than those stated. I suspect that there is only one reason, lack of money.

Atari can't even afford decent advertising for the Jaguar (for example, the recent Jaguar infomercial). The manufacture and marketing of yet another expensive piece of hardware, and development of special software for it, is out of the question. At least it is for now. Atari isn't disinterested in new Jaguar games, it can't afford 'em. Each new Atari sponsored game must be assigned some staff time, and money must be ready for contracts and production. Now that Atari is going fishing for bigger software sales on other platforms, there will be less money for Jaguar software.

Atari has taken the next logical step. At the CES in Las Vegas, Ted Hoff announced that Atari Corporation has established a new division called Atari Interactive. Ted Hoff stated that the new division ... "will address the world-wide PC market. Atari Interactive will allow consumers to receive our entertainment products on a variety of formats, from existing platforms and consoles such as our own Jaguar system to PC, Mac, the Internet and websites." Hoff went on to say that Atari would be bringing back all of its old, successful titles, revised to do justice to the capabilities of the new video game systems. The first releases under the Atari Interactive label will be Tempest 2000, Highlander, Baldies and Flipout on CD-ROM for the PC. Rather than classic Atari games, these seem to be spin-offs of Jaguar games.

I seem to recall that the old (pre-Tramiel) Atari had a division that made games for the PC and Apple II computers. These were adaptations of popular games on the Atari 800. But twelve years ago the PC wasn't much of a game machine and Atari's PC sales were modest. Recently some of these games were licensed to Microsoft. The Microsoft Arcade CD has sold very well, because nowadays the PC is a game machine. It's definitely time to try the PC and Apple markets again. Its large portfolio of game titles is probably the last major asset besides the Jaguar and Lynx that Atari has. This legacy of great games could quickly establish Atari Interactive as a major entertainment software publisher.

Atari Interactive is a major development. It should have been announced at CES by Sam Tramiel, President of Atari Corp. But Ted Hoff has been doing all the talking just lately. There is a rumour that Sam Tramiel had a mild heart attack recently (but he's OK now), and that may have held him back. Hoff is president of Atari USA but he makes, or at least proclaims, decisions that affect Atari everywhere. Now it's revealed that Atari Interactive is Ted Hoff's idea too. But that shouldn't be too surprising as he was with Time Warner when they set up Time Warner Interactive Inc. As senior vice-president of TWI, he directed sales and marketing, but he was involved in licensing, acquisition and other arrangements that led to the release of 15 to 20 new titles a year. Ted Hoff then went to 20th Century Fox, and set up Fox Interactive which he managed until he was enticed to Atari. Whatever Ted Hoff's official titles, he seems to be in charge of Atari's destiny.

If Atari Interactive is profitable, it might save Atari. But the fate of the Jaguar game system is still not clear. Obviously Atari is planning to continue supporting the Jaguar with up to 20 new games for 1996. It is not clear whether or not a separate Jaguar division will publish these games. But I suspect that Atari Interactive will eventually do all the software publishing for Atari including for the Jaguar. The Jaguar-2 has not been abandoned either, even though the inventor has left Atari. There are reports that Atari is recruiting more staff for the Jaguar-2 project.

When the negative rumours began to spread, Atari's stock prices dropped down to $1.08 and stayed near that price. With some more positive statements from Atari, the stock moved up and with the Atari Interactive announcement, the price got back to around $2.00. Prior to the drop, someone bought a block of 6 million Atari shares from Time Warner at $2.00 per share. There are persistent rumours that Sega was the buyer, and other rumours that Sega wants to adapt Atari's virtual reality headset to the Saturn. Apparently there is an agreement that all the new Sega Saturn games can be released for the Jaguar about a six to eight months after they appear on the Saturn. Is some cosy relationship developing here?

The Jaguar game console, priced at $150 US is about half the price of its nearest competitor. Lacking extensive advertising, Atari was hoping that the lower price and lots of new games would be enough to increase its sales. However, on December 1st Goldstar dropped the price of its 3DO system to $199 and added two extra games. This would make the 3DO console alone cost less than $150. The Goldstar consoles sold out very rapidly. Less than two weeks later, Atari dropped the Jaguar's price to $99 US, restoring its position as the lowest priced advanced console. Atari will be making little or no profit from the Jaguar console at that price. Profit will have to come from increased game sales.

From mid-November onwards, there was a flood of new Jaguar games. Beginning with Ruiner Pinball and Dragon's Lair CD, there followed five cartridge games: Atari Karts, Fever Pitch Soccer, Supercross 3D, Missile Command and I-War. Then four more CD games arrived: Battlemorph, Primal Rage, Myst and Space Ace. Then Baldies, a cartridge game (I believe) arrived. By the end of December Atari had reached its goal of 50 Jaguar games in total. Also at least another ten titles are in production. Prices of some of these games are ten dollars less than list in some stores. And many of the older games have been marked down, some as low as $20.

After some delay, which was due to changes at Walmart's head office, Walmart stores began stocking Atari products. There are more than 2000 Walmart stores in the US and they account for about one quarter of the video game market. Having the Jaguar in Walmart is necessary. Jaguar units have been seen displayed in some Walmart stores (along with all the other game systems). Only 400 designated Walmart stores are stocking Jaguars at this time. Jaguars have now been advertised by Radio Shack in its

See *News and Rumours* on Page 5

Continued from Page

catalogues. Radio Shack also advertised a package deal of a Jaguar console, an extra controller, composite cable and two games, Cybermorph and Iron Soldier for $200. This may have been reduced when the base price was lowered.

Some of the specialist stores such as Electronic Boutique are giving the Jaguar good exposure and have recorded excellent sales, many have sold out of Atari products over Christmas. The experimental Jaguar mall store outsold all other game platforms in the same mall 20 to 1. To increase sales Atari must have more exposure through more supportive outlets. Atari has an estimated 9000 outlets for the Jaguar in North America. Atari needs a lot more. Supportive is the word. There are too many reports of store personnel badmouthing the Jaguar. Most stores sell Nintendo, Sega, Sony and 3DO products too. They don't need to sell the Jaguar. And there are reports of certain stores, even whole chains, intending to drop the Jaguar. Some expert work is needed in marketing, otherwise Atari will just be treading water, gaining outlets and losing them.

In Canada, most of the small video game outlets and some chains, depended on Beamscope for Atari products. Unfortunately Beamscope seems to have given the Jaguar very little attention lately. Unable to get stock, most stores have dropped the Jaguar. In all fairness, Beamscope may be having trouble getting stock from Atari too. Canadian branches of Babbages and Electronic Boutique get their stock from the parent companies. The EB stores in Vancouver have all the latest games and Jaguar consoles at the new low prices. There, the Jaguar is selling for less than Sega's elderly 16-bit Genesis system.

Good Jaguar sales have been reported in Britain although there is a considerable lag in the appearance of new games. There is almost no advertising or publicity. The local video game magazines don't get advance copies of games for review. Indeed there is little or no real attention to public relations. In Germany there are rumours that distributor ABC Spielspass/Rushware could get only 180 CD-ROM units. Finally (rumours again) when Atari couldn't fill an order for ten thousand Jaguars the distributor decided to drop Atari products. Germany still has an estimated half million ST users. But only about 15000 Jaguars have been sold there so far. Of course, Atari has no facilities of its own in Europe, and has a rather small staff in Britain. All manufacturing is in the USA. And Atari USA has barely enough strength to stay in the video game market.

Sony is said to have spent $500 million to launch its PlayStation game system. And Sony has warehouses and marketing outlets throughout the world. Of course Sony is trying to capture a big slice of the video game market right off. When the Jaguar had few rivals, there weren't enough games to sell the system. Now it has the games, but it has more rivals too. Atari has to hang on and slowly accumulate a following, a market. Can the Jaguar succeed? I think it's possible. A little informal survey of stores that sell the range of video game systems showed that of the advanced units, Sega, Sony and Atari were about equal in average sales volume. More interesting, Atari averaged about 15 percent of the total unit sales in the stores surveyed. If the Jaguar was available in all video game outlets, this percentage could signify sales of $1 billion or more per year. So Atari must greatly increase the number of (supportive) stores in which the Jaguar is sold. That takes time, money, ingenuity and determination, all of which seem to be in short supply.

A VERY SHORT STORY — AUTHOR UNKNOWN

A pilot is flying a small single-engine charter plane with a couple of really important execs on board. He's coming into Seattle airport, only there is a thick fog, less than 10 feet of visibility, and his instruments are out. So he circles around looking for a landmark. After an hour or so, he is pretty low on fuel and the passengers are getting very nervous. At last in a small opening in the fog, he sees a tall building with one guy working alone on the fifth floor.

The pilot banks the plane around, winds down the window and shouts to the guy, "Hi! Where am I?" The solitary office worker replies, "You're in a plane," The pilot winds down the window, executes a 275 degree turn and proceeds to a perfect blind landing on the runway of the airport five miles away. Just as the plane stops, so does the engine as the fuel has run out.

The passengers are amazed and one asks how he did it. "Simple," replies the pilot, "I asked the guy in that building a simple question. The answer he gave me was 100 percent correct, but absolutely useless; therefore, that must be Microsoft's support office and the airport is just about five miles away on a heading of 87 degrees. Any Questions?"

This originally appeared in the News Journal, newsletter of the Lake County Area Computer Enthusiasts, Waukegan, Illinois, October 1994 issue.



GCACE MEETINGS

Semi-Drunken Social SIG!

by Rowland Grant

The November general meeting featured word processors on the ST. John Towler was first up with an old favourite, Word Writer ST from Timeworks. This software goes back to 1986, but it still serves very well. It has a surprising set of features including a spell checker, a thesaurus and an integrated outliner. The spell checker can be set to check each word as you type it, or act on call, or check the finished document. The text is displayed in GEM windows. More than one file can be displayed, each in its own window, with cut and paste between. John spent some time going over all the features.

Next Gordon Hooper demonstrated Marcel, a popular shareware word processor. Marcel can save text in various popular formats so that it can be used by different word processors or on other computer types. Also it can import images into text, a feature that Gordon displayed (using a picture of Marilyn Munroe).

Ted Skrecky showed us the secrets of Everest, the shareware editor from Germany. Everest is particularly valuable for editing rather large text files that are often captured from the Internet.

There is no general meeting in December. However we made up for this lack at the Social SIG in November. George Rose hosted the event at his place in Saanich. George has one room devoted to his many computers (lucky stiff). There were two ST systems complete with hard drives and one 8-bit system. Gordon Hooper spent much of the time trying to get George's scanner equipment working. John (hollow leg) Picken kindly tested the results of George's many brewing experiments.

Bob Lussier, our correspondent in Vancouver, has sent us seven more ST disks. These include Star Wars (pictures and sounds), Observer (document and picture displayer), the Duplicator, Personal Golf Database, Wilkinson Enterprises Collection (databases etc), Ponds and Watergardens (help and advice), and Astro22 (astrology).

We received a holiday greeting card from NWPAC. The card is printed in colour on both sides of the jacket of NWPAC's Christmas Disk 1995. Also a stack of newsletters arrived from the Nova Scotia Atari Computer User Group (NSACUG) in Halifax. They discovered us through the Internet. They are setting up a Web page and suggest that we do likewise.

John Picken received a package from ABBUC in Germany recently. ABBUC stands for Atari Bit Byter User Club. In the package was a newsletter, a leaflet and a disk. ABBUC is an Atari 8-bit club. It publishes a regular newsletter every three months and a special newsletter every six months. We received a copy of the special newsletter. This is very well turned out. It is in 6X8 leaflet format on 16 glossy pages. It's all in German of course and I haven't got around to translating everything. A disk that accompanies the newsletter has some text files and programs on the front, and a neat demo on the back. We will be sending a copy to our out-of-town (8-bit user) members.

ST NEWS

New TOS Machines!

by Rowland Grant

Perhaps the most significant news comes out of the ProTOS Show held in Hennef, Germany on November 25 & 26. This show is devoted to hardware and software using the TOS/GEM operating system. Significantly, the name Atari is seldom referred to any more. I understand that the crowd at ProTOS was much larger than anticipated. More important, the exhibitors were pleased with the level of interest and sales. A great deal of fuss has been made about the resurrection of Amiga comput- ers by a company in Germany. But at the same time and in the same place, new TOS computers are appearing. The Medusa TT clones were on display at ProTOS. However, the rival Eagle ST/TT clone seems to have disappeared. To fill this gap, the makers of Medusa have introduced a lower priced design that they have named the "Hades". This is a 68040 system with a PCI type bus containing card sockets. Thus the Hades can use standard PC video cards, drives and other devices. It should be available sometime late this spring at a price of about 3000 DM. The Medusa T40 is more expensive at 5000 DM. At present exchange rates, one DM equals about one Canadian Dollar.

Improved Falcon computers continue to be available from C-Lab. These Falcons can be had with the original specifications (Mk I), or with an internal SCSI interface (Mk II). However a new model, the Falcon Mk X, was shown at ProTOS. Up to now, C-Lab has been using the original Falcon case design. The new Falcon Mk X has a new, larger case with lots of room for internal expansion. It also uses a separate AT type keyboard. Otherwise the MK X has the same features as the other C-Lab Falcons. Other Falcon owners can upgrade their computers to the Mk X configuration for the cost of the new case. Toad computers will be handling this upgrade in North America.

The Mk X can be obtained with the optional internal SCSI bus, which makes it easy to add an internal SCSI hard drive, CD ROM drive, etc. There is also an option for an internal digital interface for video enhancement cards. C-Lab intends to bring out models of its Falcon with faster bus speeds than are available at present. There are rumours that the 68030 will be replaced with a RISC processor, maybe a Power PC. If C-Lab can do such things and stay in business, why couldn't Atari.

If you must have more speed on your Falcon now (and you have deep pockets), Afterburner040 is available. This is a compact card containing a 68040 microprocessor running at 32 or 64 MHz. It plugs into the Falcon's PDS expansion slot and contains its own expansion port that allows other cards to be installed. There are also four sockets

See *TOS Machines* on Page 15

New Game Cartridges!

by Rowland Grant

I have a sentimental attachment to the old Atari 400 and 800 models. So when George Rose asked if I would give his Atari 800 a new home, I was delighted to take it. George's Atari 800 is somewhat special because OMNIMON! is installed in it. The Atari 400/800 series had only 48K of RAM, 10K of operating system in ROM and 2K for hardware addresses. Since the 6502 microprocessor can address 64K, an additional 4K of memory was possible but not supplied. It wasn't long before others supplied it. For instance, Mosaic Electronics sold a memory board that provided 48K plus 16K of RAM that could be switched in 4K banks into the unused memory area. Later Mosaic went all out and bank switched 80K of RAM. Rather than RAM, OMNIMON! puts 4K of software into this neglected memory area ($C000 to $CFFF) using a ROM chip.

*O*MNIMON! is a system monitor. That is to say, it is a program that enables you to see what is going on in the computer's memory. You can load and run any program, hold the Option key, press Reset, and OMNIMON! will appear on the screen. It shows the state of the 6502 registers, and responds to certain commands. By pressing the ? key, a menu of commands is displayed. OMNIMON! can search for and display the contents of memory in byte form or disassembled form. Changes can be made to the memory, the stack and the registers using the built-in screen editor. What is observed on the screen can be sent to a printer. Also OMNIMON! can read from disk into memory or write memory to disk without using DOS. I tried it all, and it works.

*O*MNIMON! would help a lot in assembly language programming. Unfortunately it could also be used to crack protected code. To forestall pirates, some software publishers added a test for memory just above $C000. If OMNIMON! is present, these programs will stop loading. The original owner of George's 800 had allowed for this by adding a switch so that OMNIMON! could be turned off. With OMNIMON! off, I tested one of the programs in question and found that it would load. Then OMNIMON! was turned on, a couple of keys were pressed, and there was the code in plain view ... gotcha! I was hoping that OMNIMON! would help in recovering from lockups. I arranged for Atari BASIC to go into its infamous keyboard lockup, went to OMNIMON! and returned to BASIC. No dice, the lockup remained. Still, it's a great utility. OMNIMON! was produced by CDY Consulting. Later, OMNIMON! was distributed by Newell Industries, and I presume that the rights to it were transferred to Fine Tooned Engineering. So OMNIMON! should still be available. I recall B&C ComputerVisions was advertising OMNIMON! less than a year ago. Versions of OMNIMON! are available for XL/XE computers too.

I understand that Atari created a number of 8-bit computer games that were never released for one reason or another. However a run of cartridges were made for beta testing purposes. These cartridges have now turned up at the few remaining Atari 8-bit dealers. B&C ComputerVisions lists six games. Four good ones are: Tower Toppler, Deflector, Berserk, Super Pac-Man. Lesser games are Superman III and Kangaroo. Most of these cartridges have been sold by now, however it appears that B&C ComputerVisions have the right to make more cartridges and are doing so. Best Electronics is rumoured to have a supply of these old games too. Also Best Electronics is supposed to issue a new catalogue (#10) soon. I hope so, the last one came out more than five years ago.

*I*n 1982 Scott Ludwig wrote two games, Quarxon and Caterpiggle. These were distributed through Atari Program Exchange. He has now released his games to the public domain. Scott is working for Microsoft. Nothing like tight machine language coding on the old Atari 800 to train a programmer. The immensely popular games Alternate Reality, the City and the Dungeon have been out of production for years. Datasoft, the publisher and its successors are no longer in operation. Hence the copyright has reverted to the author's company, Paradise Programming, which does seem to be in existence. Let's hope that Philip Price will release the Alternate Reality games to the public as shareware, or even better, release some new sequels (the Wilderness and the Palace). Philip is aware of the continuing interest in this game series.

*M*ike Hohman of Fine Tooned Engineering seems to be operating the company on a part time basis. He reports that there will be some changes in his company in the next few months. There are rumours that the Mars-8 board will be ready early in 1996. There have been some real developments too. The SpartaDOS X 4.22 upgrade chip is finally shipping. Several people have reported receiving their orders recently. Mike's policy is not to deposit cheques until the product is being shipped. The new SpartaDOS X recognises the Sweet16 65816 board. The SDX manual has also been updated

I haven't heard any more about MIO-2, Mike's IDE hard drive interface. However, a working prototype of another IDE interface for Atari XL/XE computers was seen recently in Germany. Software for this is still under development. Also, yet another IDE interface is being produced by Jacek Zuk and Konrad Kokoszkiewicz of Poland. Again, software is the main problem. The various DOS's do not handle sectors larger than 256 bytes, while the IDE drive uses sectors of 512 bytes. Their software will store two DOS sectors in the 512 byte blocks so that Sparta DOS or MyDOS can be used. Of the various IDE interface developments, the Polish project seems to be nearest completion.

*F*or SpartaDOS users, Nelson Nieves is developing a set of utilities. These will be similar in function to the popular Norton Utilities for MS-DOS computers. Some of these utilities are vUnErase, XCopy and DeFrag. vUnErase will view and unerase deleted files or directories. This will also allow the recovery of partially overwritten deleted files. XCopy will use the extra 64K on 130XE computers to read and write files faster. DeFrag is a file defragmentor and separate directory optimizer. Nelson has released NNTOOLS.ARC, a sample file of these programs.

*S*teven Tucker has released version 1.07 of his Atari Peripheral Emulator (APE) software. This includes the complete APE Pro System. With it you can create .PRO images using any 1050 drive. Steven reports that APE will run under Linux (a Unix clone) using MS-DOS emulation on a fast computer. Of course, APE only makes an MS-DOS computer act as an Atari 8-bit interface.

See *Cartridges* on Page 16

RAM/ROM Control on XL/XE

(Continued from last issue) **by John Picken**

AUXILLARY ROM CONTROL

Program control of Atari BASIC, OSS Super Cartridges, the R-Time 8 cartridge and, in a limited fashion, SpartaDOS X, is fairly simple but for one fact: there's nearly no documentation available on the subject. What I present here is gleaned from a bit of disassembly and a lot of experimentation (pretentious word for "try it until it don't crash").

Note that all following references to a cartridge being "present" imply that it is turned on--if it's plugged in but turned off, consider it "absent". You may always consider the RT8 to be absent unless you're actually trying to access it. First let's look at the addresses used for, or in conjunction with, auxillary ROM/RAM control.

PORTB has already been covered; just keep in mind the function of the BASIC bit.

BASICF is a flag in low memory to tell the OS, on system reset, how to set bit 1 of PORTB. If this flag contains any non-zero value the BASIC ROM will be disabled.

TRIG3 is an address on the GTIA chip which was used for joystick trigger #3 on the 400/800. On the XL/XE it is a cartridge status indicator; if a cartridge is present it reads 1, otherwise it will be 0. There is no other possible reading at this address.

GINTLK is set, on boot, by the OS and is a copy of TRIG3. The OS compares GINTLK with TRIG3 during the deferred vertical blank interrupt and, if the two don't match, goes into a "soft" lockup (i.e. a reset will re-boot).

CARTCK holds a checksum, calculated on boot, by the OS. On a reset, if a cartridge is present as signalled by TRIG3, the OS re-calculates the sum and compares it with CARTCK. If the two don't match, the OS assumes you've pulled or inserted a cartridge and immediately re-boots. Note that Mapping the Atari is wrong on this: it applies to all XL/XE's, not just the 1200.

CARTCK, TRIG3 and GINTLK are effective for all cartridges except (in part) the RT8. One other important thing to note is that the TRIG3/GINTLK comparison occurs during the deferred vertical blank. This means you can fool around with a cartridge to your heart's content as long as the stage two vblank doesn't occur and you don't hit Reset. You can prohibit vblank2 in any of three ways: disable all NMI's, set CRITIC to a non-zero value or, most simply, use a SEI opcode.

The hardware address range for all cartridge control is $D500-$DFFF. Within that page, OSS cartridges use $D500-$D50F, the CSS MUX OS uses $D570-$D57F, the RT8 uses $D5B8-$D5B9, and SDX uses $D5E0-$D5EF. This sounds straightforward; unfortunately it isn't.

Atari-type Cartridges

I made no mention of Atari cartridges in the address ranges because once you stick one of the beasts into the slot, your only control over it comes with the power switch or by using SDX. An Atari cartridge can not be turned off by software unless SDX is present (even if turned off). SDX can control one because it sits between the computer and the cartridge and can, thereby, zap it electronically. However, the foregoing discussion of TRIG3 and GINTLK remains fully applicable.

OSS Super Cartridges

Though the control range is $D500 to $D50F, the cartridge address decode logic is only four bits wide. This means that any access (read from, write to, or otherwise manipulate) a $D5xy address affects the cartridge which ignores the "x". OSS cartridges react to the whole $D500 page based on the low 4 bits of the address.

To enable an OSS cartridge bank, add the bank number to $D500 and access that address (i.e. for bank n, STA $D50n, LDX $D50n, STA $D500,X where the x register holds n, etc.) In theory, a cartridge should be able to contain up to fifteen 8k banks and still allow you to turn it off. In practice, they contain two or three.

The cartridge bank number is found at location $AFFF. Valid values at $AFFF are 0, 3 and 4 for Action! and 0 and 1 for MAC/65. Other bank values produce varying results. MAC/65 ignores bits 1 and 2 so any value from 0 to 7 results in selection of either the odd or even bank. With Action! attempts to select other bank numbers result in selection of one of the real ones or in selection of nothing i.e. a monitor shows a pile of $AF's in the $AF page just as when you examine page $D7 and get $D7 at all addresses.

Addressing bit 3 turns cartridge ROM off. BASIC XE has banks 0, 1 and 9 but bank 9 is RAM. In bank 9, the cartridge is off and RAM under it is being accessed but TRIG3 stays high; a sneaky way to avoid having to worry about GINTLK. The other constant for all cartridges is bank 0 which is the bank in which the cartridge boots and initializes.

OSS Cartridge Examples

Following are several examples of cartridge and BASIC control with SDX not present. I'll start with equates for all examples from Mapping the Atari (XL edition):

```
WARMST   = $08
BOOT?    = $09
CRITIC   = $42
RAMTOP   = $6A
COLDST   = $0244
CARTCK   = $03E8
BASICF   = $03F8
GINTLK   = $03FA
TRIG3    = $D013
PORTB    = $D301
NMIEN    = $D40E
EDITRV   = $E400
```

Here's the simplest: turn off a cartridge and enable BASIC assuming both are actually present.

```
SEI          Kill stage 2 vblank
STA $D508    Kill any cartridge
LDA PORTB
AND #$FD     Drop basic bit
STA PORTB
LDA TRIG3    This should be 0
STA BASICF   Flag it and
STA GINTLK   correct the cart shadow
CLI          Enable stage 2 vblank
```

Now let's access RAM under a cartridge:

```
SEI          Kill stage 2 vblank
LDA PORTB
PHA          Save Portb
ORA #$02     Kill basic rom
```

See *RAM/ROM* on Page 9

Continued from Page 8

```
STA PORTB
  LDA #$08       Assume no cartridge.
  LDX TRIG3      Check assumption.
  BEQ GOTBNK     Go if none or off,
  LDA $AFFF      else get the bank
GOTBNK
  PHA            Save cartridge bank.
  STA $D508      Kill any OSS cartridge
  LDA TRIG3      Set the shadow before
  STA GINTLK     the stage 2 vblank!
  CLI            Enable stage 2 vblank
```

*D*o whatever in the RAM, then restore the previous status:

```
  SEI            Kill stage 2 vblank
  PLA            Recover cartridge bank
  TAX            and restore the cart
  STA $D500,X    to it's prior status
  LDA TRIG3      Reset Gintlk to
  STA GINTLK     correct status
  PLA            Restore prior Basic
  STA PORTB      rom status
  CLI            Enable stage 2 vblank
```

*J*ust turning a cartridge off is simple:

```
  SEI            Kill vblank 2
  STA $D508
  LDA TRIG3      Make sure it went
  STA GINTLK     off and flag it
  CLI            Enable stage 2 vblank
```

*C*old-starting an OSS cartridge is only slightly more complex:

```
  SEI            Kill vblank 2
  STA $D500      Enable cart bank 0
  LDA TRIG3      Set the shadow
  STA GINTLK     correctly
  LDA PORTB
  PHA   ORA #$01
  STA PORTB      Ensure OS is on
  CLC            Calculate the
  LDX #0         checksum
  TXA            for reset.
CSLOOP
  ADC $BFF0,X    Note the sum
  INX            includes the
  BNE CSLOOP     first 240 bytes
  STA CARTCK     of the OS ROM.
  PLA            Restore any RAM
  STA PORTB      OS (or Sparta)
  CLI            Enable stage 2
```

*A*fter cold-starting an OSS cartridge or BASIC, set WARMST to 0 to flag a boot so that the buffer pointers are cleared. If you don't, you can, for example enter BASIC, type LIST and get an endless display of zeros and/or a lockup. Then initialize the ROM. With Action! and BASIC this doesn't matter as the initiali- zation routines just RTS; with BASIC XE I'm not sure; with MAC/65 it's required. To initialize any cartridge:

```
  LDX #$FF       Say we're on a boot
  STX COLDST     and make sure all
  INX            flags reflect this
  STX WARMST
  INX
  STX BOOT?
  JSR INIT       Go do it
  LDX #$FF       Say we're back to
  STX WARMST     normal status, i.e.
  INX            what happens on Reset.
  STX COLDST     Note that some or all
  INX            carts play with some
  STX BOOT?      of these flags!
  RTS
INIT
  JMP ($BFFE)    Cartridge init vector
```

*A*fter enabling or disabling a cartridge or BASIC, you also have to ensure top of RAM and screen pointers are correct. To do this, execute a "GRAPHICS 0". In machine language terms, you set RAMTOP and then close and re-open channel 0 to the "E:" device. You can do this in the traditional manner via CIOV or more simply by calling the following subroutine with the accumulator holding $C0 if turning ROM off and $A0 if turning it on.

```
GRAPH0
  STA RAMTOP     Either $A0 or $C0
  LDX #0         Indicate channel 0
  LDY #2         Point to Close vector
  JSR EDO
  LDY #0         and now to Open vector
EDO
  LDA EDITRV+1,Y
  PHA
  LDA EDITRV,Y
  PHA
  RTS
```

*B*e aware that turning off BASIC XE does not free up the RAM under the cartridge if you intend to later restore the cartridge. BXE uses that RAM as well as that under the OS floating point routines and also (undocumented) sets an interrupt vector in the last page of RAM ($FFFx).

*O*ne final note on turning ROM off or on: following the Graphics 0, an RTS under Sparta will usually lock up the keyboard requiring a reset. Sparta installs its own E: handler so when you use the OS handler to reopen E: Sparta's vectors are no longer valid. The simple way around this is to exit via a JMP (DOSVEC). This is probably a good idea with any command-processor FMS where you can use a batch file instead of an autorun to set things up.

The SpartaDOS X Cartridge

SDX boots in bank 0 but works in bank 1 with one subroutine call back to bank 0 via low RAM. You can tell the cartridge has to contain numerous banks just by looking at a directory of CAR: but I have not discovered any single location containing a bank identifier and I doubt there is one as its existence essentially would mean a "hole" in the middle of each 8k ROMdisk bank. There is, as mentionned, a low RAM subroutine to access banks based on an index which I suspect is used to load files from CAR:

CAR.COM uses the following combinations to control all three ROMs in the cartridge area. The values under "SDX" and "OSS" are offsets from $D5E0 and $D500 respectively and those under BAS are the value in bit 1 of PORTB. The "on" under the OSS column is the value found at $AFFF before the cartridge was last turned off and used to reenable it. The $0C value for SDX is what causes it to latch any cartridge off and the $08 makes it transparent so that the cartridge ROM is accessible.

SDX	OSS	BAS	OPERATING CONDITION
$01	$08	1	in DOS or low RAM
$0C	$08	1	in high RAM (X.COM)
$0C	$08	0	in BASIC
$08	on	1	in cartridge

*I*f you're going to play with SDX banks remember that any read or write to a $D5Ex address will affect an OSS cartridge and TRIG3. Since TRIG3 is affected, GINTLK and CARTCK also come into play. So the example given of how to access RAM under a

See *RAM/ROM* on Page 10

Continued from Page 9

cartridge needs to be modified if SDX is present. Let's look at a subroutine to access RAM in the cartridge space taking in the possibility of the presence of BASIC, SDX, or an OSS cartridge.

```
ROMCTL
   LDA PORTB
   PHA  ORA #$02    Any Basic rom off
STA PORTB
   LDA RAMTOP       This might be easy
   CMP #$A0+1
   BCC NOLUCK       Not quite.
;
   PLA              See note a. following
   STA BASICF       for an explanation
   JMP DOSTUFF
; -------------
NOLUCK
   LDA TRIG3        Is a cart present?
   BNE CART         Yes, go.
   JSR DOSTUFF      Still fairly easy
   PLA
   STA PORTB
   RTS
; -------------
CART
   PLA              See note a. following
   STA BASICF       for an explanation.
;
   SEI              Kill stage 2 vblank
   LDA $AFFF        Get OSS bank
                    number
   PHA              Save it
   STA $D5E8        Turn off both carts
   JSR DOSTUFF
```

We know a cartridge was on. Now we have to restore it correctly.

```
   PLA              Recover bank
                    number
   CMP #$10         Is it valid for OSS?
   BCS SDX          No, must be SDX
;
   TAY
   STA $D500,Y      Restore OSS cart
                    bank
   BCC CARXIT       Go always
;
SDX
   STA $D5E1        Enable SDX normal bank
   STA $D508        Kill OSS cart (note b.)
CARXIT
   CLI
   RTS
```

a. The reason for discarding the PORTB entry value is to allow for 512k+ RAM expansions. As mentionned previously, the OS doesn't know extra RAM exists and has no way of knowing BASIC does not exist on large upgrades. As a result, it sets PORTB and BASICF based solely on the Option key at boot and uses BASICF to determine which status to restore on a reset. On large RAM upgrades this leads to major problems for programs using extra RAM as the program can end up in the wrong 256k bank. Unless BASIC is actually on, it is always advisable to flag it off and to set its bit high in PORTB.

b. We knew a cartridge was on or we never would have got to that portion of the code. As it wasn't the OSS cartridge, it had to be SDX. But, because the dumb OSS cartridge reacts to the $D5E1 address, we had to turn it off again after enabling SDX. For the same reason, a single access of $D5E8 was sufficient to turn both off.

The R-Time 8

Control of the RT8 is built into all versions of Sparta from 3.2 on. As far as I know, all you can do with the RT8 is set or get time and date information. The only problem in doing this is that accessing the RT8 registers will affect an OSS cartridge. Because of this the RT8 has two identical user accessible registers $D5B8 and $D5B9. According to the RT8 source, addressing $D5B8 will turn off a cartridge and $D5B9 will turn one on. I doubt the latter statement as bit 3 is being accessed. I think, rather like BASIC XE's RAM bank, it turns off the cartridge but sets (or leaves) TRIG3 high.

The RT8 has seven internal registers which work in binary coded decimal. Starting from #0 they are: seconds, minutes, hour, day of month, month, year, and day of the week (#6). Seconds and minutes range from 0-59, hours from 0-23, day from 1-31, month from 1-12, year from 0-99. Day of the week ranges from 0 (Saturday) to 6 (Friday). When you read or write one of these registers the sequence is always the same:

1. Wait until the RT8 is not busy.
2. Store a value from 0 to 6 into $D5B8 or $D5B9 indicating the register you wish to address.
3. Read/write the same address to get/set the most signifigant digit (the low four bits are the valid data).
4. Read/write the same address to get/set the least signifigant digit (the low four bits are the valid data).

The source code released by ICD indicates that reading a register should be repeated up to three times accepting two values that match or, failing a match, the first one. When setting a register, it recommends reading it immediately afterward to ensure the value was really accepted and allowing 10 tries.

Here's one way to read and write RT8 registers without worrying about an OSS cartridge. Much of this is from the source released by ICD. In this example, the buffer is set up in the same order as the RT8 registers. With Sparta, you would have to cross refer to the order in which DOS saves time and date and keep a separate byte for day of the week.

```
   *= $F0           Floating point zero page
TEMP1
   *= *+1
TEMP2
   *= *+1
RETRY
   *= *+1
BUFFER
   *= *+1           Seconds
   *= *+1           Minutes
   *= *+1           Hours
   *= *+1           Day of month
   *= *+1           Month
   *= *+1           Year
   *= *+1           Day of week
;
   *=               WHEREVER
   SEI              Kill vblank2
   LDA $AFFF        Get any cart bank
   CMP #$10         Is it valid?
   BCC SAVBNK       Yes go, else use
   LDA #$08         the "off" value. SAVBNK
  PHA               Save cart bank
```

Verify rt8 present and working

See RAM/ROM on Page 11

Continued from Page 10

```
    JSR READ        Get seconds
    CMP #60
    BCS GLITCH      if >59 then error
    STA TEMP1
    LDA RTCLOK+2
    ADC #90
WAIT
    CMP RTCLOK+2    Wait about 1.5"
    BNE WAIT
    JSR READ        Read again
    CMP TEMP1       Same as last?
    BEQ GLITCH      Yes, not working
    SEC
    SBC TEMP1       Ensure <3
    BCS CHECK3      It is
    ADC #60         else did it roll over?
CHECK3
    CMP #3
    BCC RT8OK       Yes, rt8 is ok
GLITCH
    LDA # <RT8ERR   Set for error
                    message
    LDX # >RT8ERR
EXIT
    STA ICBAL
    STX ICBAH
    LDA #9          Print to eol
    STA ICCOM
    STA ICBLH       Plenty of length
    PLA
    TAX             Restore cart bank
    STA $D500,X
    CLI             restore vblank2
    LDX #0          Select channel 0
    JMP CIOV        Exit with message
```

*F*irst read the clock regs into the buffer

```
RT8OK
    LDX #6          Point to day of
                    week
RCLOOP
    JSR READ
    DEX
    BPL RCLOOP
```

*C*hange values you want in the buffer and then write it back to the clock.

```
    LDX #6
RCLOOP
    JSR WRITE
    BNE GLITCH      Exit if write failed
    DEX
    BPL RCLOOP      else do all 7
    LDA # <RT8SET   Set success message
    LDX # >RT8SET
    BNE EXIT        Branch always
RT8ERR
    .BYTE "RT8 Error",155
RT8ERR
    .BYTE "RT8 Set",155
; Subroutine: wait til clock is
; not busy or exit on time out.
; Enter: x=clock reg to access (0-6)
; Exit: x unchanged, clock ready,
;     and clock register selected
WAITCL
    LDY #$FF        Timeout value
WAITC
    LDA $D5B8
    AND #$0F        If low nybble=0
    BEQ READY       clock not busy
    DEY   BNE WAITC  Else time out
READY
    STX $D5B8       Set reg #x to read/wrt
    RTS
; Subroutine: read rt8 reg once
; In x=reg# ; Out a=byte x=reg#

READ1
    JSR WAITCL
    LDA $D5B8       Get high byte
    LDY $D5B8       Get low byte
    AND #$0F        Convert bcd to hex
    STA TEMP1
    ASL A           Clears carry
    ASL A
    ADC TEMP1
    ASL A
    STA TEMP1       Temp1=(high*10)
    TYA             Add in low byte
    AND #$0F
    ADC TEMP1       Return byte in a
    RTS             Note c=0 x=x y=trig3
; Subroutine: read a clock register
; and accept best 2 of 3 readings
; or the first if none match.
; in: x=reg#
; out: a=value($)
READ
    JSR READ1
    STA TEMP1
    JSR READ1
    CMP TEMP1
    BEQ REXIT
    STA TEMP2
    JSR READ1
    CMP TEMP2
    BEQ REXIT
    LDA TEMP1
REXIT
    RTS
; Subroutine: write clock register
; with value stored in buffer offset
; by x. Allow 10 tries.
; in: x=reg#
; out: x=reg#, z flag set if ok
WRITE
    LDA #9
    STA RETRY
WRT2
    LDA BUFFER,X
    LDY #$FF        Convert to bcd
    SEC SUB10
    INY
    SBC #10
    BCS SUB10
    ADC #10
    PHA             low byte
    TYA
    PHA             high byte
    JSR WAITCL      y=trig3
    PLA             High byte
    STA $D5B8
    PLA
    STA $D5B8       Low byte
    JSR READ        Verify it set
    CMP BUFFER,X correctly
    BEQ WRTXIT  It did!
    DEC RETRY
    BPL WRT2        Never 0 if failed
WRTXIT
    RTS
```

See *RAM/ROM* on Page 12

A Fan For Your ST!

by Alex Chamberlain

When Apple introduced the first Macintosh computer in 1984, a lot of people didn't take it seriously. Not only was it shaped wrong for a "real" computer... but it also didn't have a fan! After a few years Apple started putting fans in its computers, and about that time the Mac started to be really popular. Coincidence? I don't know, because this article isn't about Macintoshes--although it is about fans.

Arguments about "real" computers aside, a fan in your computer is a good thing to have. The inside of your ST or STe gets hot, especially in warm weather. Even hotter if your computer has any internal modifications, like extra memory or an accelerator. Heat is the number-one enemy of electronic components. Installing an internal fan makes a huge difference in their life--and that means less money spent on repairs and less time doing without your trusty computer while it's in the shop. Specifically, in the following instructions I will tell you how to install a fan that cools your ST or STe's power supply. This is easily the hottest part of the computer, and thus the most prone to heat-caused failure. For about $20 in parts and a couple hours' effort you can put off having to spend $75 or so for a new power supply. Sounds worth it, you say? Then let's go!

Disclaimer

Although this is a simple project (as

See *ST Fan* on Page 13

RAM/ROM

Continued from Page 11

The Multiplexer! Operating System (MUX)

The MUX OS makes frequent access of registers in the $D57x range. A cursory glance at the ROM reveals it uses the following registers on a read-only basis 1, 6 and 7. Registers 2, 3, B, C and E are accessed as write-only while 0 is read/write. Every one of these addresses will affect an OSS cartridge. I found no indication in the MUX code that it makes any effort to accomodate a cartridge, GINTLK or TRIG3.

While I have managed to work around an SDX cartridge and an RT8 in controlling BASIC, OSS cartridges, and even Atari cartridges (with SDX present), I can see no way of doing so with the MUX OS. I believe the idea with the MUX is that once the plug's in the port, you can't use a cartridge anyway. that's kind of unfortunate as it denies you use of a cartridge and access to the built-in monitor. As I don't have a MUX to experiment with, I leave that to someone else.

Cold and Warm Starting and Parallel Devices

If you turn off an OSS cartridge and then re-boot under most versions of SpartaDOS, you get a "soft" lockup as DOS will enable a cartridge as part of its boot process in testing for BASIC XE. Simply hit Reset and the computer will boot again with the cartridge on. If you want to reenable the SDX cartridge after having turned it off using the COLD command, the method should be obvious by now. What is not obvious are a few other addresses and quirks in warm and cold starting.

On boot the OS calculates ROM checksums and compares them to ones stored in the OS itself. If these don't match, boot doesn't happen; you end up staring at the Self Test screen and a red bar under the heading "ROM". This can easily occur on a system with a PD because cold starting the computer does not cold start the PD any more than it does a cartridge. If PD ROM is enabled, as for a modem handler on a BBS, and you attempt to cold start, you will inevitably end up in Self Test because the ROM checksum will fail. It is supposed to include the floating point ROM at $D800, but instead gets a bank of the PD ROM.

Finally, if you're just going to warm start, decide whether or not you want to emulate a press of the Reset key. Jumping to the warm start vector at $E474 is not the same as pressing the key; the vector points past the hardware initialization routines. If you want to ensure you clear out all garbage (left over player missiles, keypress, etc.) you have to use the chip reset vector.

The following routine has varying results dependant on the entry point. To enable SDX, enter at XCART. To enable an OSS cart alone, enter at CART. To just cold start without touching the cartridges, enter at COLD. To simulate a press of Reset, enter at WARM.

```
XCART
     SEI           Always before a $D5xx
     STA $D5E0     Enable SDX
CART
     SEI           Again, dependant on entry
     STA $D500     Enable OSS cart
COLD
     DEC COLDST    Force a boot
WARM
     SEI           Just in case
     LDX #0
     STX NMIEN     Ditto
     STX $D1FF     Enable floating point
     STX $D1E2     Kill MIO RAM (this and
     DEX           following just in case)
     STX $D1BC     turn off BlackBox RAM
     STX PORTB     Ensure ROM OS is on to
go   JMP ($FFFC)   through chip reset
vector
```

I won't go any further on this as the Black Box and MIO are, unlike Atari and OSS products, fairly well documented. Whew, when I started this I never thought it would turn into such a monster nor did I think it would take so long to come up with all the ins and outs. Now that you know how easy it is to make use of the RAM under cartridges, under the OS and in extra memory, I look forward to seeing some practical utilities. Here's a few suggestions:

* Pop-up help screens for use in MAC/65, Action! or BASIC.
* An 8k RAM cache.
* A "pop-up" calculator.
* A resident DUP.SYS. .

Continued from Page 12

computer upgrades go) there are always risks when dealing with electricity and electrical/electronic gadgetry. Therefore, I will formally state that neither I, nor GCACE, nor anyone associated with this newsletter will be held responsible for any damages, injury, or other unwanted or unpleasant event resulting from this article and the instructions therein. (But just between you and me: have a little care and patience and you'll do fine.)

Tools and Materials Needed

--A 1040STf, 1040STfm, or STe. You could do this to a 520ST, but there wouldn't be much point, since the power supply in those models is external. Also, Megas are quite different internally, and they already have a fan (although reading this article might give you the confidence to swap it for a quieter one).

--A small (#2 or so) Phillips screwdriver, medium-sized flathead screwdriver, needle-nosed pliers, an old pair of scissors (that you don't mind abusing), a small file, and perhaps tinsnips.

--A small soldering iron, not more than 30 watts.

--A small fan. The best kind is often known as a "processor fan"--it's made to fasten onto 486 and Pentium chips in PC clones and keep them from overheating. (Aren't you glad you have an Atari?) These are about 4 cm square by 1 cm thick and run on 12 volts DC power. You should be able to get one from any good computer store, or from many mail-order places. I bought mine from Computer Gate in California at (408)730-0673 for US$4.99--the part number is COKIT.

--Superglue and various nuts, bolts, washers, and screws. Unfortunately, you probably won't know what you need in this department until you get the computer apart--sorry. (In fact, you might want to wait to buy a fan until you can open up the machine and look at the available space--as I'll explain below, fitting everything together is a little bit tricky.)

Preparing Your Work Area

You'll need a large flat space, about four times the area of your ST. Don't try to do this in the space where you use your computer--if your desk is anything like mine, you'll be scattering books, papers, and disks all over the place as you wrestle with the ST. The floor is better. If the surface is hard you'll want a pillow (to lay the ST on, not to sit on--well, maybe you'll want one to sit on too, you're going to be here a while). Make sure you have plenty of light and all your tools are close at hand; also that you're near an electrical outlet.

A digression: One more thing to keep in mind when preparing your work area is ground protection. On a dry day, you can generate enough static electricity just walking across a carpet to destroy all the chips in your ST. Even though we won't be working directly with any of the fragile electronic components in the computer, there is still the possibility of zapping them if you have built up a large electric shock before sitting down to do this project. Therefore you should take precautions against static before beginning.

The easiest thing to do is to go to an electronics store (Radio Shack will do) and buy a static grounding wristband. This is an elastic strap that fits around your wrist and plugs into a wall outlet (don't worry, it can't electrocute you). Another safe thing to do, but a little less convenient, is to work on the ST near water pipes (like in the kitchen) or near an electric baseboard heater, and touch the pipes or the heater periodically (definitely after walking on the carpet) to discharge static. Yet another choice is to buy an anti-static mat (electronics store staff can recommend one) that, like the wristband, plugs into the wall.

Opening the Case

And now, back to our story... It's amazing how many people take opening up things for granted. Too many instruction sheets for ST upgrades start with "Open the computer case" without any further explanation. But it's not really that simple. Atari really didn't design the ST computers to be easily opened up and modified--you can't just undo three screws and slide the top off like you can with PC clones. (Aren't you sorry you have an Atari? Ha ha. Just a little "electronics geek humor" there.) Anyway, if you've opened up your ST before, you can skip this part, but please, have pity on those who are new to it.

First, unplug all the cables (don't forget the mouse and joystick) from the ST (and the cartridge, if one is installed). If there's a disk in the internal floppy drive, take that out too. Lay the machine keyboard side down on the pillow. Now take a good look at the screws in the underside.

There are three screws in a right-triangle arrangement directly under the floppy drive. These you don't want to remove--they hold the floppy drive in, and we don't need to take it out today. All the rest have to come out. Keep track of where they go by drawing a rectangle on a piece of paper to represent the ST, and placing them in the right place in the rectangle. Maybe tape them down, even. You don't want to get them confused--some are longer than others. And, make sure you get all the screws--one or two may be hidden under oval "security" stickers with the Atari logo on them, if your machine has never been opened before. Again, try not to take the disk drive screws out. It's easy to tell which ones they are if you accidentally do take one out; they're much longer than the others.

Got all the screws out? Good! We're about to take the case apart for real now. There's nothing holding the ST together--so grab it at both sides and, squeezing the top and bottom halves of the case together gently so nothing falls out, flip the entire machine over and lay it right side up facing you on your work surface (as if you were going to start typing). You should have felt the top half of the case trying to separate from the rest as you picked it up! Encourage it to separate by lifting it up at the left edge. Use two hands, one at the back corner and one at the power light, and swing the entire top half of the case up and to the right. It won't want to separate from the disk drive--to get it all the way off, hold the right edge of the case and pry it gently towards you, so it clears the drive.

Now you can get the keyboard out of the way. Pick it up from the left--it's not attached to anything there--and flip it gently over to the right, onto the pillow, as if you were opening a book backwards. You'll see that it's attached to the computer only by some rather delicate little cables. The next part takes a steady hand: Grab the black connector where the little colored wires meet the rest of the computer and pull it straight up. Remember, like unplugging a lamp from the wall, pull on the connector, not the wires!

Now you have the guts of the machine exposed. The sheetmetal covering everything up is *shielding*. Its purpose is to keep the neighbors happy by preventing the radiation from your computer from interfering with their TV reception. But, it's also a good place to fasten things. You're going to fasten the fan you just bought to it. Specifically, to the large, perforated shield at the upper left of the computer, covering the power supply. (You knew I was going to get back to that sooner or later, didn't you? Trust me!) This shield is held on by at least two screws--it varies from machine to machine--so take those out now. If you look

See *ST Fan* on Page 14

Continued from Page 13

carefully you'll notice that there are also a couple of little twisted tabs of metal holding the thing down. Take your needle-nose pliers again and twist them straight with the holes in the power supply shield. Now just lift it up and off.

Most if not all ST and STe power supplies (at least, every one I've seen) are the same style, made by Mitsumi. They have a large gap in the middle between two of the larger components. If you lay your fan in that gap you'll see it fits nicely. However, you don't just want to lay the fan down, obviously--when it runs, the blades will rub against things. So the rest of the job consists of two things--(1) fixing the fan in the case so that it doesn't touch anything it shouldn't, and (2) connecting the fan to the power supply so that it actually runs.

Mounting the Fan

I can tell you exactly how to do step (2), but step (1) is a little more complicated and will require some ingenuity on your part. I wish I could give a procedure for attaching the fan that would work in every situation, but subtle differences between STs in the structure of the shielding and the mounting of the power supply, not to mention all the different kinds of fans you might have bought, make that impossible. For what it's worth, here's how I did it:

My fan from Computer Gate has four mounting screwholes on it. The distance between two of the screwholes almost matches the distance between two of the holes in the shielding in my 1040STf. So, all I did was enlarge the holes in the shielding by reaming them out with one blade of an old pair of scissors. (Bet you were wondering when that was going to come in.) Then the fan was easy to attach with two bolts, two nuts, and a few washers to hold the blades "out in the air" so they wouldn't rub on the sheet metal.

For mounting holes that don't match up well with the holes already in the shielding, you could make new ones with a drill or tinsnips. Or try supergluing the fan to the sheetmetal. (Don't glue the blades together--and don't glue the fan so close to the metal that it will rub when it turns on!) Whatever method you use to mount the fan, periodically snap the shielding back into place as you mount it to make sure everything goes back together neatly.

Another digression: Your fan probably has a little arrow on the side to show you which way it will blow when hooked up, and you may be wondering which way it should blow. There seem to be different schools of thought on this; I have seen fans blowing air both into and out of computers. I guess that a fan blowing out carries hot air out faster, while a fan blowing in carries cool air in. So either way will work. On the other hand, if the place where you use your computer is very dusty, a fan blowing in will tend to bring more dust into the computer. I have two cats, so I mounted my fan to blow up and out--floppies and kitty hair don't get along too well!

Attaching the Power Leads

If you've made it this far, you're past the hard part. Now we need to hook the fan to the power supply so it can actually blow instead of just sitting there looking pretty. (Although it does look nice--let me be the first to congratulate you.) Here's quick review of Power Supplies 101: The power supply converts the 120 volts alternating current (AC) from the wall into 12 volts direct current (DC) which the circuits in the ST and our little fan can use. (Actually the power supply also puts out 5VDC to some parts of the ST but that's irrelevant right now.) So we want to hook the fan up so it gets the 12VDC that it needs.

If you've never used a soldering iron before, read all the directions that came with it. Better yet, practice on a couple of random bits of metal first. When you're ready, gently tin (that is, cover lightly with molten solder) the ends of the two leads from the fan. Hopefully one is black, for ground, and the other is colored, for positive. Take a look at the bottom right corner of the power supply unit. Look at the row of contacts where the colored wires that plug into the motherboard (between the power supply and the keyboard) are connected to the power supply board. Tin the contact labeled +12V (usually at the bottom edge) and the one closest to it labeled GND (for "ground"). Then solder the positive wire from the fan to the +12V terminal and the other wire to the GND terminal. Before you put away the soldering iron, examine your work. Make sure the soldering joins are solid and tidy--if you accidentally connected the +12V and GND terminals to each other, or the two wires to each other, or *anything* else that I didn't tell you to do, you could cause a nasty short circuit.

If everything looks OK, put the shielding back on (don't put the screws back in just yet, though). If there are loose wires between the fan and the circuit board, fasten them down somehow so they can't tangle in the fan blades--I stuffed mine under the keyboard, outside the shielding. Now carefully reconnect the ST's power cable and turn it on. Don't worry, you won't hurt the ST by powering it up without any cables connected to it!

If all is well you should hear your fan! If you don't, here are some things that might be wrong: Make sure the ST is really on--the power LED at the bottom left should be on. Make sure the fan leads are connected to the right terminals. (Please, for your own sake, turn the power back off before removing the power supply shielding! It's just too easy to touch the wrong terminals and shock yourself or short out the computer.) Also make sure the fan blades don't rub the inside of the shielding (or whatever you mounted the fan to) when they spin.

Putting it All Back Together

As they say, assembly is the reverse of removal. But I always found those kind of directions pretty unhelpful, so here's a little more detail. First, unplug the power cable if you haven't already. Check one last time that the fan is firmly mounted and doesn't touch anything it shouldn't, and that its power leads are out of the way. Snap the power supply shielding back down, bend the metal tabs back, and screw it all down. Plug the keyboard connector back in--it only goes one way, so don't force it in backwards--and push it down firmly with the tip of the pliers. Flip the keyboard over so it's laying where it should be in the case.

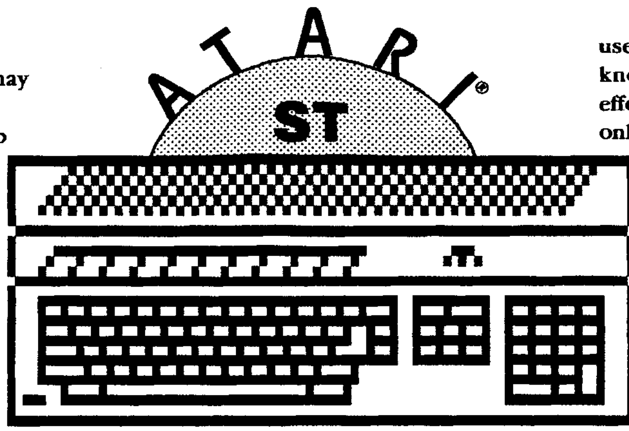
Now comes another tricky part. I have taken my ST apart about a hundred times and I still have trouble with this, so don't feel stupid if you have to give it a couple of goes. To get the top of the case back on you will have to sneak it back over the disk drive again. Bending it gently out at the bottom may help, as it did when you took it off, or you may just push the case to the left while laying the left side down. I know that isn't very clear, but it isn't very easily said, and it's easier said than done. I usually end up just jamming the case down on both sides and then prying the disk drive upward with a flathead screwdriver in the slot, in order to coax it back into its hole in the case.

Now pick up the machine again, holding it together as before. Flip it over and lay it down on the pillow so you can put the screws back in. Some of the screws may not

See *ST Fan* on Page 15

Continued from Page 14

feel like they "bite" in their holes, or may not stay in at all; this is a common occurrence, and means that the cheap plastic Atari used for the case has been stripped and the screws no longer have anything to screw into! If only a couple of screws have this problem, don't worry about it; the case will hold together fine with less than the full complement. If you want to fix it, get some screws that are similar, but slightly longer and wider. They will be difficult to screw in at first, but will carve their own holes in the plastic and hold much more firmly than the old ones.



That's all there is to it! You can now use your ST just as before, secure in the knowledge that you've made a significant effort to prolong the machine's life. The only downside to having a fan in your computer is the noise it makes. Personally, fans don't bother me, because when I am wrapped up in my work on the computer, a jet plane could take off next to me and I wouldn't notice. In fact, by some strange coincidence, my external hard drive case has a fan in it that sounds just like a jet plane taking off. So the little "processor" fan in the ST is hardly noticeable. Anyway, I think a little noise is a small price to pay for the benefit of cooler operation and longer computer life. So let's get those screwdrivers out!

TOS Machines

Continued from Page 6

for standard SIMM memory modules, allowing expansion of fast RAM up to 128MB. You might need a new case for the Falcon if you add the SIMM cards. Afterburner040 can speed up your Falcon by a factor of 14. It is available from Computer Direct (Edmonton) for $1300 CDN. If your requirements are more modest, the FX expansion card is also available from Computer Direct for $350 CDN. The FX card will increase the frequency of the Falcon's bus and CPU up to 40 MHz. Included are four SIMM slots for Fast Ram expansion. Also there is an internal video expansion module giving a true colour resolution of 640x480 or 1024x768 resolution with 256 colours. FX was developed by Blowup in Germany.

Another new hardware upgrade from Germany is Panther. This is an adaptor for standard ISA bus video cards. These will enable any TOS computer to use an enhanced VGA or SVGA monitor. It costs about 200 DM, and should be available in Canada soon. For those who have added the PAC 68030 board and TOS 3.06 to their ST computers, there is FRAK. This is a fast RAM board that will take up to 32 MB. With Panther, PAK and FRAK you can make your ST more powerful than a TT. Of course you may need to get a new case for it too. And you could use a Zip drive in place of a hard drive. Several ST users have reported that a Zip drive can be used as the only SCSI device, and the system can be booted from it. They used ICD's Link II interface and Pro Utilities.

In North America, Steve Cohen of Wizztronics says that his Hawk upgrade for Falcon computers should be back from the manufacturers soon. Also he is still working on a Falcon clone. He has a working prototype motherboard that is much smaller than Atari's. Another supplier, Computer Direct, customises TT motherboards and has sold a number of computers under its own DirecT30 label. Another DirecT computer will be offered soon. One version will be a rack mounting type. It will have a Monochrome VGA flat screen that folds out of the case. This would be great for musicians.

It seems that Atari's TOS computers have trouble handling high speed modems above 19.2K bps. This difficulty can be overcome using a hardware modification called RSVE and a software patch called HSMODEM. The latest version, RSVE2, can be obtained as a kit (40 pounds sterling) from System Solutions in Britain. The kit contains a special grid array logic chip, an oscillator and a few wires. It will handle frequencies from 38.4K to 115K bps. When installed, no special software drivers are needed to handle these higher speeds. However, TOS has some software bugs that need correction before high speed modems will work. This is done by HSMODEM. Even so, some terminal software may not work too well with this modification.

Gemulator 4.1 is the latest upgrade of Darek Mihocka's STe emulator for a fast PC. This version now will run under Windows 95 and Windows NT. It also features faster video handling, smoother mouse movement and improved compatibility with very large disk partitions. There are rumours that David Small is still working on his Macintosh emulator and that he is now testing a system 7.x compliant version. At the ProTOS show, there were many Macintosh computers running TOS programs under MagicMac. The latest version of MagicMac will run on PowerPC Macs, but only in emulation mode.

The alternate ST operating system, Magic 4.0, was introduced at the ProTOS show. It has a new desktop with newly styled GEM windows, new file selector and a font selector. This version will run on the Falcon and the TT, however the installation program may need work. Magic 4.0 also multitasks, and can, with certain utilities, format disks or run printers in the background. It should be available now from Toad in the US and Computer Direct in Canada. Overscan of Germany presented some competition with their N-AES. This is a full multitasking Application Environment Service to run with Mint. The N-AES package, including Mint and Thing desktop costs 99DM. Papyrus version 4 was shown at ProTOS. The English version of this document processor is now available. Tempus WORD version 5 may be even better than Papyrus. It is to be released in February, but probably only in German.

Another interesting program is "Dr no|" from no| software (I dunno| what the | means). Dr no| is a very efficient and rapid search and retrieval tool for writers. I understand that Dr no| can be set up to relate the contents of text files and the applications (word processors, editors, DT publishers etc.) that created the files. By typing in a key word or phrase, the program will search through the text files and locate the text. Then it will run the appropriate word processor or editor, load the correct document and display the text requested.

See *TOS Machines* on Page 16

TOS Machines

Continued from Page 15

This would be great for searching through text on a CD ROM. At the moment Dr no| is in German, but an English translation is under consideration. Another great program, Arabesque 2, is now available. This is a complete revision of Arabesque. It is a colour vector graphics program that is said to rival Corel Draw on the PC for features. The resource files and the manual have been translated into English. Arabesque 2 imports and exports all the important file standards for the Atari, Macintosh and PC. So general colour vector graphics can be done on a ST and then be exported to most other platforms. Price around $300 (a lot cheaper than Corel Draw).

Computer Direct in Edmonton seems to be working towards being the major Atari source in Canada. Not only is it importing loads of software and hardware, but it is also sponsoring software created closer to home. One of these is In-Touch, a powerful and flexible database created by Lorne J. White. In-Touch is especially structured to handle personal information such as names addresses, notes and dates. It uses a unique index viewing system for selecting and manipulating all the data. Price has been set at $79.99 CDN.

Considering the cost of upgrading a TOS computer to current standards, it might seem to be cheaper to buy a loaded PC clone or a Macintosh. However, if you have used an Atari computer for years for serious work, you may be abandoning a substantial investment in time and experience if you switch platforms. And the new computer platforms with the new software will demand a further investment in time. Taking that into consideration, buying a current, state-of-the-art, TOS based computer may be the cheapest option. Particularly if essential software continues to be updated so that you can continue to use and expand your hard-won skills and experience. In Germany, the ST was always considered a computer for doing serious and commercial work. The ProTOS show is an example of how German ST users are preserving their investments in themselves. By doing so they are preserving the skills and experience of ST users everywhere.

Cartridges

Continued from Page 7

However, it is possible to emulate an Atari 800 directly on a Unix or Linux computer. The emulator, created by David Firth, comes as code that must be compiled and installed. However those adept at Unix have made it work, even under multi-tasking. There are reports that the emulation is cleaner than PC Xformer 3. The emulator is the file atari800.tar, issued under the GNU public license. There is a version of this program that runs under UNIX Xwindows as well.

Darek Mihocka is continually upgrading PC Xformer to keep ahead of this competition. The latest development is the Xformer cable. With this cable you can connect a 1050 disk drive to the parallel printer port on a PC. The latest version of PC Xformer will be able to control this 1050 drive and even boot from it. It should be possible to run some copy protected disks. Darek will make up a batch of these cables if he gets enough orders. However, the Xformer cable is just a SIO connection with a Centronics plug on the other end. There are no electronic parts, so it should be easy to make. With this cable you will not have to use disk images, and 8-bit files will be easily accessible.

Darek highly recommends the POOLDISK CD-ROM being produced by Ernest Schreurs and his associates in Holland. The POOLDISK has 2000 disk images, several hundred megabytes of Atari 8-bit software in the .XFD format that can be used immediately by PC Xformer. While there has been a lot of interest in the POOLDISK CD, only about 50 have been sold so far. They need to sell at least 100 to cover expenses. The disks cost $35 (US) postpaid. Many users of APE or SIO2PC need disk images in .ATR format. The POOLDISK CD contains programs that can convert .XFD images to .ATR format.

Ben Poehland, "the 8-bit alchemist" in Current Notes, founder and past editor of Atari Classics, has sold off most of his legendary Atari 8-bit collection and will be buying a PC clone. This is sad news. His articles on upgrades and modifications of Atari 8-bit computers were, perhaps, the finest of their kind. Also Dale Wooster, president of NWPAC (an 8-bit only club) has decided to return to Texas, to be nearer to his family. There was some doubt that NWPAC would survive. However, I understand that NWPAC will carry on with three officers, rather than five, and that they will shut down PAUGS BBS. Dale will stay on as president until his moving arrangement are complete. Program author Clay Halliwell is with the US Air Force. Duties over the last five month have kept him from his Atari. But now he is in a position to resume the development of Flickerterm 80, his 80-column terminal program. First on his agenda is to add a capture buffer. Quite right, every terminal program should have one.

Game Review

Continued from Page 3

include the venerable NES, the Amiga CD32 and the Laser Active. I personally believe the window of opportunity for the Jaguar is over and that in order to stay alive, Atari would be well advised to branch out into the software end of the business, where many small companies have done very well.

One is reminded of the Atari ST. In its time the ST was vastly easier to use than either PC clones or the Amiga. However unlike Apple, Atari was just too small to make a go of it, even with excellent hardware. I don't blame Atari management, the lack of advertising or any other factor for the demise of the ST. Even if Atari had made ALL the RIGHT moves the ST would still have been forced out of business. People will only buy computers that will run standard software. It brand X is incompatible with big Blue or Apple it will have no chance. I suspect the same sort of shakeout will occur in the videogame industry as well.

While rooting through the bargain bin at the Doppler Computer Superstore in downtown Vancouver I came across an item which I found hard to believe: "Activision's Atari 2600 Action Pack for Windows '95"! This included 15 original Atari 2600 games. These were: Boxing, Chopper Command, Cosmic Commuter, Crackpots, Fishing Derby, Freeway, Frostbite, Grand Prix, H.E.R.O., Kaboom, Pitfall, River Raid, Seaquest, Skyjinks, Spider Fighter

Long live the Atari 2600!